19990827.ba v02_n648.bam.990827 v02_n649.bam.990827

>From ???@??? Sat Aug 28 00:33:56 1999
Message-Id: <199908271310.d7RDA0J14837@sco.theporch.com>
Date: Fri, 27 Aug 1999 08:09:34 CDT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2648

BOATANCHORS Digest 2648

Topics covered in this issue include:

1) Re: STRANGE NC-303 PROBLEMS
by "Grant Youngman" <nq5t@gte.net>
2) Re: STRANGE NC-303 PROBLEMS
by Al Klase <skywaves@bw.webex.net>
3) Re: STRANGE NC-303 PROBLEMS
by "Grant Youngman" <nq5t@gte.net>
4) Re: Mobile radios of the 70's
by <davidh@getnet.com>
5) 70's rigs...
by Ray Mote <rmote@rain.org>
6) Re: STRANGE NC-303 PROBLEMS
Re: STRANGE NC-303 PROBLEMS
Re: STRANGE NC-303 PROBLEMS
Re: STRANGE NC-303 PROBLEMS
Re: STRANGE NC-303 PROBLEMS
by "Herbert M. Rosenthal" <herbrose@lobo.net>
7) Re: 70's rigs...
by BobR <brainbol@lawrence.ks.us>
8) Re: RECAPPING
by "Roberta J. Barmore" <rbarmore@indy.net>
9) Re: Test equip and STRANGE NC-303 PROBLEMS
by "James C. Garland" <4cx250b@miavx1.acs.muohio.edu>
10) TV-3B Tube Tester
by Stanley A Mcintosh <mcintos@basf-corp.com>
11) re: RECAPPING
by "Rodger Singley" <rbsingl@ilstu.edu>
12) Re: RECAPPING
by n2bc@stny.rr.com

Message-Id: <199908270334.WAA8405902@smtppop1.gte.net>
From: "Grant Youngman" <nq5t@gte.net>
To: Old Tube Radios <boatanchors@theporch.com>
Date: Thu, 26 Aug 1999 22:34:08 -0500
MIME-Version: 1.0

Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7BIT
Subject: Re: STRANGE NC-303 PROBLEMS

> A quick look at the HF oscillator signal (at the grid of the 1st mixer) on
> a Tek 465B indicates a waveform that looks almost like a triangle wave
> with the upper tips tilted to the right -- not quite a sawtooth, but close.

Further checking doesn't prove the HFO waveform in as a likely source of the problem. I've replaced the HFO with a very clean external signal (HP 8640B). With the dial at 14.110, and external HFO feed at 11.895 --- the SWBC signal at 9.670 is still loud and clear. I can also hear a 14.110 signal externally injected at the antenna.

Ugly !!!

Grant

Grant Youngman / NQ5T
nq5t@gte.net
BA pics at http://home1.gte.net/nq5t
Double Oak, TX -- nr Dallas

Message-ID: <37C60742.4413FDB5@bw.webex.net>
Date: Thu, 26 Aug 1999 23:34:26 -0400
From: Al Klase <skywaves@bw.webex.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: STRANGE NC-303 PROBLEMS
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Grant Youngman wrote:
>
  One example ... SWBC at 9680 Khz appears at
> 14110 Khz on the 20 meter band. Difference is 4430 Khz which is
> 1/2 of the 1st IF of 2215 Khz.
>

I think you meant twice the first IF. If the LO is on the low side of the desired signal (the usual situation), this is a straight-forward image, and shouldn't have anything to do with LO harmonics. You might check the RF stages for proper alignment.

73,
al

--
Al Klase - N3FRQ
skywaves@bw.webex.net
Flemington, NJ 08822
Web Page: http://www.webex.net/~skywaves/home.htm

Message-Id: <199908270342.WAA1535251@smtppop3.gte.net>
From: "Grant Youngman" <nq5t@gte.net>
To: Old Tube Radios <boatanchors@theporch.com>
Date: Thu, 26 Aug 1999 22:41:37 -0500
MIME-Version: 1.0
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7BIT
Subject: Re: STRANGE NC-303 PROBLEMS

This should have read ...

> Further checking doesn't prove the HFO waveform in as a likely
> source of the problem. I've replaced the HFO with a very clean
> external signal (HP 8640B). With the dial at 14.110, and external HFO
> feed at 11.895 --- the SWBC signal at 9.680 is still loud and clear. I
> can also hear a 14.110 signal externally injected at the antenna.
>
> Ugly !!!

As Al Klase just pointed out in another message, this just sounds like the front end is screwed up. I haven't done a cleanup and alignment on this thing yet - maybe the cure will come in the normal course of things.

Grant

Grant Youngman / NQ5T
nq5t@gte.net
BA pics at http://home1.gte.net/nq5t
Double Oak, TX -- nr Dallas

Message-Id: <199908270451.d7R4pXJ04550@sco.theporch.com>
Subject: Re: Mobile radios of the 70's
Date: Fri, 27 Aug 99 05:51:10 +0100
From: <davidh@getnet.com>
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"

I ran a Swan 350 and than a Swan 270 Cygnet in a 1963 Olds 88 from 1969 to 1972. The Cygnet was great as it had both AC and DC power supplies built in. Antenna was a remote control Swantenna which was great when it wasn't intermittent. Worked plenty of DX (close to 100 countries) including some stuff that is pretty rare now like Laos XW8 - used to ragchew with them while commuting to college on the southern California freeways. Later in the 1970's ran an Atlas 210X in my 1968 Valiant and 1977 Silverado 4WD pickup with Hustler antennas. I worked in the RF power transistor group at Motorola Semiconductor at the time so I put some custom RF transistors (sorry guys!) in the finals that would withstand an infinite VSWR and would not blow up! Managed to work all continents on 75 phone with this set-up around 1979. My interest was mobile DXing back than and occasionally worked mobile CW while on the highway using a homebrew keyer and a vibroplex paddle on the seat. Last HF mobile for me was early 80's with an IC730 which was like a dream radio as far as features went but a pain to use because of matching problems. With the tube transceivers, this was never an issue. As long as the antenna was resonant and loaded, I never worried about VSWR since the feedline was so short. Keep thinking about getting back on HF mobile again but it will be with a modern ricebox!

Dave

****

Dave N7RK - Webmaster CADXA
Phoenix, Arizona   *DXCC Honor Roll*   *WAZ#23 - 75 Meter SSB*

ex-N7RK/ZB2, VK2ERK, ZM0AJN, WB6NRK, WN6IWX

Boatanchor Collector Extraordinaire preferring Hallicrafters, National
and what ever else looks interesting!

E-Mail: davidh@getnet.com
My Home Page: http://www.getnet.com/~davidh

Visit the Central Arizona DX Association Home page - http://cadxa.org

---

Date: Thu, 26 Aug 1999 22:29:18 -0700 (PDT)
From: Ray Mote <rmote@rain.org>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: 70's rigs...
Message-ID: <Pine.SUN.4.05.9908262223290.8773-100000@coyote.rain.org>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hmmm... I stuck an SB-33 between the bucket seats in a '62 Valiant in 1966 and took both of 'em with me when the Air Force sent me to Puerto Rico for three years. Used a Newtronics Hustler for the antenna. Rig worked like a bandit in the mobile, as long as I remembered to keep the mic gain down (to prevent simultaneous FM'ing). From '69 to '73 in college in Texas, it was a Motorola 33GGV with another one in the house running off an old filling station battery charger converted for use as a monster supply. No time for HF work after the freshman year! <grin>

73....Ray Mote, K5FKT <rmote@rain.org> Oxnard, CA

Message-ID: <37C622CA.3C5@lobo.net>
Date: Thu, 26 Aug 1999 23:32:03 -0600
From: "Herbert M. Rosenthal" <herbrose@lobo.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: STRANGE NC-303 PROBLEMS
                  Re: STRANGE NC-303 PROBLEMS
                  Re: STRANGE NC-303 PROBLEMS
                  Re: STRANGE NC-303 PROBLEMS
                  Re: STRANGE NC-303 PROBLEMS
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Back in the 'All Star 5' days, there was a capacitor, usually 0.01mF between the ac line going to the start of the filament chain and the plate of the rectifier (35Z5, etc.), and the chassis. I forgot exactly what it was called (buffer cap ?), but if the non-polarized (in them there days) ac plug was plugged in the wrong way, that is, with this hot side connected to the ac neutral, weird things happened, including decrease of the strength of the received signals, stray signals, etc. Reversing the plug solved the problem.

Most likely, signals were entering the radio from the ac line into the filament chain, and from there to where-ever.

Is it possible that the mystery signals in the 303 enters on the ac cord? It would only take a sec to tack a disc cap from each side of the line to the chassis ground. Of course the caps used should be rated 600v or 1kv, or even better ac rated for line voltage.

My dos centavos,

Herb Rosenthal W5AN
Albuquerque

Message-ID: <37C66F9F.50C5@lawrence.ks.us>
Date: Fri, 27 Aug 1999 05:59:43 -0500
From: BobR <brainbol@lawrence.ks.us>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: 70's rigs...
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Lessee.....In '71 I was driving a '66 Polara wagon with a Hustler antenna ball-mounted on left rear wheel well. Had resonators for 40 and 80. Ran SSB only with an Heath HW-101. Worked out great except for the couple of times, with the 80m resonator on, I knocked out low-hanging lamps at service stations. Spent most of time on 40m as the '101 would cover all the fone band without complaining. Nowadays it's an SS rig and screwdriver antenna on all-band CW, but as others, been kinda thinking about installing the Drake TR-4....
--
Bob/WB0AUQ
mailto:brainbol@sunflower.com

Date: Fri, 27 Aug 1999 06:31:59 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: RECAPPING
Message-ID: <Pine.SUN.4.10.9908270533500.17811-100000@indy3>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi!

Condensers are marvelous device, and one of the oldest passive components in the art.

However, taken as a group they are one of the *most* non-ideal components there is! That's as in "Platonic ideal," for the philosophy majors, and what it means is, real condensers in the the real world do not behave in the precise manner of their mathematical and/or handwaving analysis models.

Therefore when you or I go to replace old types with nifty-keen brand-new ones, we are likely to find ourselves encountering unexpected results. Here's a little peek into the World of Condensers:

Tip One: old waxed-paper & foil condensers are usually marked to indicate the outside foil, which should be connected to the earthiest point. These critters can exhibit significant inductance (depending on internal construction, especially the method of attaching leads) as they are, viewed end-on, a big old spiral of conductors; the dielectric losses can be on the high side *and* *variable* thanks to the waxed paper & its hygroscopic and "hook" effects, and this can have the effect of introducing significant and possibly non-linear series resistance. Sometimes that's okay; more often, it'll bite you when you are not looking. They are known to have a limited useful life.

Tip Two: electrolytic condensers can *also* exhibit significant inductance (see above), high-ish equivalent series resistance (gets too high, they're goners), and, due to the nature of the film & its forming action, will always show some parallel or "leakage" resistance. Very handy if you need a lot of C in small space *and* you are not so much bothered by poor performance at higher frequencies. Excellent in power supplies, a bit iffy with audio; study your application carefully with an eye to the known flaws.

Tip Three: tantalum condensers are physically smaller than 'lytics for a given electrical size (but likewise polarized) and will therefore be less inductive, have lower leakage, etc. Not bad for audio. Early tantalums were failure-prone; when you stuff lots of C into a small space you pay a price, in cash and in figuring out the how of it. Modern ones are pretty good; for audio apps needing high capacity and in which there'll be some DC to keep the electrochemical activity happy, they are a good choice.

Tip Four: ceramic-disc and ceramic-fil/monolithic condensers come in many flavors. Some are tastier than others! The smallest, cheapest types use tricky ferroelectric ceramic formulations in a deliberate price/performance/size trade-off; X7R, Y5V, Z5U are typical examples, all of slightly differing characteristics. In general, these low-end versions will show variation in dielectric constant with temperature, applied AC and DC voltages & AC current, and possibly phase of the moon. At audio, they will introduce *measureable* amounts of distortion. They're handy for many bypassing applications. NP0 ceramics are another story. Usually larger and more expensive than their cousins, they've got plain old, just-lays-there-and-insulates ceramic dielectric, allee same as your Wedgewood Steatite dinner service for seven, and are useful just about anywhere. You'll pay more for them. My own preference is for monlithic packages over the disc type--the monos are a little more rugged physically. Axial-lead, glass-encapsulated monos are among the best, but hard to find; "dipped" radial-lead monos are common.

Tip four: polyestrene-film condensers are nice, stable little jobs made out of what looks like Saran-wrap and tinfoil. Performance is at least as good as NP0s and the better micas, though a tiny gotcha lurks in the rolled construction, which depending on internal connection methodology can introduce some inductance. But it is much less than in wax condensers thanks to the higher dielectric constant of the plastic. Drawbacks, you can melt 'em with speed and ease when soldering in, and the plastic does not tolerate most flux-removers well. Larger values (1000pF and up) are costly, and should be reserved for critical applications.

Tip five: Mica condensers are an old standby. Usually a "stacked" construction, they have good performance at RF though can be cooked by excessive AC current (and will act very funky long before the smoke comes out). Long-term, they can suffer interesting failure modes, most typically the growth of metal-crystal "whiskers" into the mica, and this can cause breakdown. Well-sealed micas are fairly immune to this, but it's something to watch out for.

Tip six: modern polypropalene and polyethylene condensers are a good replacement for the old wax one. Generally well-behaved through MF and may be available in both stacked and rolled versions.

Tip seven: Mylar condensers are also good replacements for old wax. Rolled mylar-film condensers even *look* about the same (and will generally be marked to indicate the outside foil, etc.) Electrical properties similar to the poly caps in tip six. Usual rolled-construction caveats apply, though the free-bonus L will be lower than a wax condenser of the same electrical size, mylar having a better dielectric constant than old candles and less surface area for the plates being thereby required.

Tip eight: Alas, the wonderful air-dielectric variable condenser can have problems, too. Known nasties, in no particular order, are excessively resistive shafts & wipers; frames that constitute a partial-turn inductor; lousy dielectric material, and too much dielectric *other* than air in the electrical field. Look for good, solidly-built condensers with isolantite/ceramic insulation, and for really critical uses, keep an eye out for the old Nationals with insulated bearings.

Tip nine: Solid-dielectric variable condensers are simply not that good. Too many compromises. Wonderful things in a pocket MW receiver, otherwise yeech. This does *not* include the good little mica trimmers, which are pretty handy and excellent in set-and-forget applications.

Tip ten: Vacuum condensers are about as close to the textbook, ideal model as can be had. They cost like it, too. But when you need a really high voltage rating, good RF-current rating, and high stability, they're the only choice. *Variable* vacuum condensers have a little bellows structure that allows the piston to move without breeching the seal, which will eventually fail and can be broken by excessive motion. (Most tpes incorporate a screw-on shaft that unscrews *before* you've overflexed the bellows). You *can* cook them with excessive RF current; I have a fine collection of 15pf "dead soldiers" from the output network of an RCA TV transmitter as evidence.

Last thought: with *any* condenser, you can make up a fine little VHF/UHF series-resonant circuit with excess lead length. As a general rule, the shorter the better!

And there's just almost everything I know about condensers, off the top of my head.

73,
--Bobbi

KB9GKX "RJ" rbarmore@indy.net   Roberta J. (Bobbi) Barmore
FISTS #3388 * G-QRP #10001 * ARRL * RSGB * WIA
Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

Message-Id: <3.0.5.32.19990827075010.00835100@miavx1.muohio.edu>
Date: Fri, 27 Aug 1999 07:50:10 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: "James C. Garland" <4cx250b@miavx1.acs.muohio.edu>
Subject: Re: Test equip and STRANGE NC-303 PROBLEMS
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 09:59 PM 8/26/1999 -0500, you wrote:
>Hi John,
>>Have been looking at the output of my stable of RF gens, Heath SG-8 (2@),
>>Jackson 634, & an ancient Precision genny.
>>The waveform looks terrible on some freqs, for all these units!
>>Is this normal?

>   I have to tell you, (hate to do it but you need the education), that
>this is the difference between the
>"TV Service Quality" equipment, and the Lab quality stuff, i.e. HP, TEK,
>et.al. ....The workman's only as good as his tools!

>
>Kim W8ZV
>
>

Hi Gang,

I'd like to reiterate Kim's comments. He's absolutely right. In my opinion, it's a false economy to outfit your test bench with consumer grade test instruments. Like many on the List, I've learned this lesson the hard way. Over the years, I've shelled out good money for Eico, Heathkit, and B&K scopes, signal generators, frequency counters, and power supplies. Ditto for no-name cheap imports.

All of that stuff is now long gone, and good riddance! They've caused me nothing but headaches: test meters with drifting zero points; power supplies with destructive turn-on spikes and wandering output voltages; scopes with blurry, uncalibrated, distorted displays; frequency counters with inaccurate timebases and poor triggering; signal generators whose outputs have hum-modulated, unstable outputs.

Please don't misunderstand me. I'm not saying that, eg., Heathkit didn't build some good instruments. But a $100 signal generator just isn't in the same league as an HP generator that cost $6000 new.

Now my test bench is populated by names such as HP, Tektronix, Wavetek, Fluke, Kepko, and Lambda. Now, when my Tek scope shows a DC offset and ripple on a waveform from a Hallicrafters receiver, I know for certain that the problem is in the receiver and not the scope.

Of course, I've never paid new prices for any of my test gear. There is a huge market for used lab-grade instruments (an EBay site, "Photo & Electronics:Consumer Electronics: Test Equipment", is dedicated to it, as are publications such as Nuts and Volts), and excellent instruments can be picked up for a tiny fraction of their new cost.

Here are some typical prices for used lab-grade gear: Tektronix 2215 100 MHz oscilloscopes -- $150 - $50
Fluke DVMs -- $25-150
HP bench power supplies -- $25-150
HP 8640B signal generatore $350-750
Wavetek 3000 signal generator $150-250
HP freq counters: $50-250

Depending on model, condition, and age, prices can vary up or down. Super bargains are not at all unrare. With some exceptions, I tend to prefer lab instruments from the 1970s and early 1980s, just before the advent of microprocessors. Equipment from that era is modern enough to have excellent performance and extraordinary reliability, but not so modern that it can't be fixed if it breaks. (Just try repairing an instrument having a proprietary microprocessor bus!) Circuit boards of that era have components that can be seen without a microscope, and construction quality is fabulous: gold plated circuit boards, teflon wiring, etc. Best of all, the instruments of that era have no keypads and tiny pushbuttons that require a 400 page user manual to figure out!

Many hams like the older vacuum tube instruments, especially Tek scopes and HP signal generators. I admire the old stuff too. They are wonderful instruments, no question about it, but they're bigger, less reliable, produce more heat, and generally have lower performance than comparable gear from later eras. It's a matter of personal taste, of course, whether the cachet and beauty of the old instruments compensate for these shortcomings.

So my recommendation, if you like to work on your own radios: keep your eyes open for bargains and gradually outfit your bench with lab grade test gear. You'll never regret it.

73,

Jim Garland W8ZR

From: Stanley A Mcintosh <mcintos@basf-corp.com>
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <852567DA.004544BB.00@basf-corp-gw01.basf-corp.com>
Date: Fri, 27 Aug 1999 08:40:02 -0400
Subject: TV-3B Tube Tester
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Got one of the above for sale for $60 plus shipping (or transfer at Shelby). The only problem is a knob missing on the hatch that covers the crevice with the power cord and accessories. Wiring on a couple of the accessory plate connectors needs replacing; the insulation is too brittle for the wire to bend.

72
sam
kd4bth
mcintos@basf.com

Message-ID: <002301bef08c$3e136a20$33c0578a@rbsingl>
From: "Rodger Singley" <rbsingl@ilstu.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: re: RECAPPING

Date: Fri, 27 Aug 1999 08:01:12 -0500
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Roberta wrote (lots of excellent info including)..."Early tantalums were failure-prone; when you stuff lots of C into a small space you pay a price, "

And I will add to this-I have noted a number of these caps failing in Tektronix 7000 series plug-ins and now distrust them more than the famous black beauties. I have a 7704A which I think will be forever filled with the smell of burnt decoupling choke due to the failure of one of the little tantalum jobs in a 7A26 plug-in. Although I probably have gone overboard on this, after 9 different failures I am replacing all of these little "colored gumdrops" in my 7000 plug-ins (7A26 among others contain a number of these). If anyone notices smoke (or if you are lucky depending on the failure point) just the power supply clicking off from overload this cap technology is suspect. As for BA content, the 7000 series has become my scope of choice for BA work-highly recommended with prices continuing to drop on the surplus market.

Rodger WQ9E

To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
From: n2bc@stny.rr.com
Subject: Re: RECAPPING
Message-Id: <270899239.22152@198.133.22.66>
Content-Type: TEXT/PLAIN; charset=US-ASCII
Date: Fri, 27 Aug 1999 06:09:28 -0700

Bobbi, as usual for you... great stuff! OK with you if I use this in our club's newsletter, you'll get credit and compensation commensurate with my salary as editor... zero.

Your posts always get special attention in the N2BC mailbox.

73, Bill
--- Original Message ---
"Roberta J. Barmore" <rbarmore@indy.net> Wrote on
Fri, 27 Aug 1999 06:31:59 -0500 (EST)

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Tip six: modern polypropalene and polyethylene condensers are a good replacement for the old wax one. Generally well-behaved through MF and may be available in both stacked and rolled versions.

Tip seven: Mylar condensers are also good replacements for old wax. Rolled mylar-film condensers even *look* about the same (and will generally be marked to indicate the outside foil, etc.) Electrical properties similar to the poly caps in tip six. Usual rolled-construction caveats apply, though the free-bonus L will be lower than a wax condenser of the same electrical size, mylar having a better dielectric constant than old candles and less surface area for the plates being thereby required.

Tip eight: Alas, the wonderful air-dielectric variable condenser can have problems, too. Known nasties, in no particular order, are excessively resistive shafts & wipers; frames that constitute a partial-turn inductor; lousy dielectric material, and too much dielectric *other* than air in the electrical field. Look for good, solidly-built condensers with isolantite/ceramic insulation, and for really critical uses, keep an eye out for the old Nationals with insulated bearings.

Tip nine: Solid-dielectric variable condensers are simply not that good. Too many compromises. Wonderful things in a pocket MW receiver, otherwise yeech. This does *not* include the good little mica trimmers, which are pretty handy and excellent in set-and-forget applications.

Tip ten: Vacuum condensers are about as close to the textbook, ideal model as can be had. They cost like it, too. But when you need a really high voltage rating, good RF-current rating, and high stability, they're the only choice. *Variable* vacuum condensers have a little bellows structure that allows the piston to move without breeching the seal, which will eventually fail and can be broken by excessive motion. (Most tpes incorporate a screw-on shaft that unscrews *before* you've overflexed the bellows). You *can* cook them with excessive RF current; I have a fine collection of 15pf "dead soldiers" from the output network of an RCA TV transmitter as evidence.

Last thought: with *any* condenser, you can make up a fine little VHF/UHF series-resonant circuit with excess lead length. As a general rule, the shorter the better!

And there's just almost everything I know about condensers, off the top of my head.

73,
--Bobbi

KB9GKX "RJ" rbarmore@indy.net   Roberta J. (Bobbi) Barmore
FISTS #3388 * G-QRP #10001 * ARRL * RSGB * WIA
Appreciator Of Vacuum-Tube Ham Gear and Vintage Keys

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End of BOATANCHORS Digest 2648
****

>From ???@??? Sat Aug 28 00:35:38 1999
Message-Id: <199908272334.d7RNY0J28910@sco.theporch.com>
Date: Fri, 27 Aug 1999 18:33:47 CDT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2649

BOATANCHORS Digest 2649

Topics covered in this issue include:

1) replies to NAVSHIPS 94200
by "Paul Bernhard Sr." <w2tu@email.msn.com>
2) Re: STRANGE NC-303 PROBLEMS
by Garey Barrell <k4oah@mindspring.com>
3) SP-600 info
by Ray Vasek <w2ec@ibm.net>
4) Re: Mobile radios of the early 70's that fit the BA mold.
by Allan Stephens <modsteph@ACS.EKU.EDU>
5) Replacing waxed paper caps caution
by "John Gibson" <gibsonj@mindspring.com>
6) Re: Replacing waxed paper caps caution
by Scott Robinson <spr@earthlink.net>
7) Re: RECAPPING
by Scott Robinson <spr@earthlink.net>
8) BC-348 Dial Lamp Current
by Stanley A Mcintosh <mcintos@basf-corp.com>

9) Fabulous cheap power transformer
by "John Gibson" <gibsonj@mindspring.com>
10) Fabulous power transformer 2
by "John Gibson" <gibsonj@mindspring.com>
11) STRANGE NC-303 PROBLEMS
by JOHN_SEHRING.parti@ecunet.org (JOHN SEHRING)
12) NC-303 PROBLEMS/TEST GEAR
by JOHN_SEHRING.parti@ecunet.org (JOHN SEHRING)
13) RE: Mobile Radios of the 70's
by James Hanlon <knjhanlon@uswest.net>
14) RE: STRANGE NC-303 PROBLEMS
by James Hanlon <knjhanlon@uswest.net>
15) RE: RECAPPING
by "Osterwald, Ray" <t4504@psco.com>
16) Excess capacity
by "Rhett T. George" <rtg@ee.duke.edu>
17) Narco, Collins, Swan, Johnson, etc.
by Jim Isbell <mfalcon@pyramid3.net>
18) NC-303: Improving
by AA5QT@aol.com
19) NC-300 / 303 Image Trap
by Garey Barrell <k4oah@mindspring.com>

Message-ID: <004901bef08c$fe91ac80$365b143f@default>
From: "Paul Bernhard Sr." <w2tu@email.msn.com>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: <collins@qth.net>
Subject: replies to NAVSHIPS 94200
Date: Fri, 27 Aug 1999 08:54:42 -0400

I was amazed at the interest in my set of binders. I really didn't even have a dollar amount in mind as I have no idea what the value may or may not be. I will let that up to you folks and see what happens. Make an offer but keep in mind they are heavy (about 10-15 lbs.) for shipping.

As for trade - The only things I need are parts and tubes for my KWM2A restore project, especially the following tubes - 6u8a, 6bn8, 6eb8,6dc6 and of course the 6146B finals. I also am looking for any dial parts, the escutcheon, main tuning knob, the fiducial dial or other dial parts. Let me know what you have.

Thanks again

Paul B. W2TU

Message-Id: <3.0.1.32.19990827091415.0069b360@pop.mindspring.com>
Date: Fri, 27 Aug 1999 09:14:15 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Garey Barrell <k4oah@mindspring.com>
Subject: Re: STRANGE NC-303 PROBLEMS
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Hi Grant -

I have both an NC-300 and a 303 and have not had the problems you are describing. I assume you are aware of the "Mixer Image Trap Adjustment" which is described in the alignment procedure. Obviously National was aware of a problem in that area. Also, I use a tri-band beam on the higher bands, which gives me some rejection of 9 Mhz signals.

Somtimes I think we forget the context of this equipment, and are "surprised" when it doesn't perform as well in some areas as modern equipment. Imagine trying to implement an 80 MHz IF upconverting superhet with bandpass filters in the front end for each band using 1950's technology. Not to mention a 100 Hz step synthesizer!!

Let us know if you find a correctable problem to resolve this situation.

73, Garey - K4OAH

At 10:07 PM 08/26/1999 -0500, you wrote:

>
>> The NC-303 problem (spurious responses) reminds me of what I've recently
>> observed...
>
>Here's one data point ... 20 meters only. Haven't checked the other
>bands yet, but there are SWBC signals on 15/10 as well
>
>SWBC stations from the 31M band are showing up on 20. Very
>strong signals. One example ... SWBC at 9680 Khz appears at
>14110 Khz on the 20 meter band. Difference is 4430 Khz which is
>1/2 of the 1st IF of 2215 Khz.
>
>A quick look at the HF oscillator signal (at the grid of the 1st mixer) on
>a Tek 465B indicates a waveform that looks almost like a triangle wave
>with the upper tips tilted to the right -- not quite a sawtooth, but close.
>
>Guess its time to do some digging ....
>
>Grant

>
>
>
>
>Grant Youngman / NQ5T
>nq5t@gte.net
>BA pics at http://home1.gte.net/nq5t
>Double Oak, TX -- nr Dallas
>
>

Message-ID: <37C68F79.A69B72AA@ibm.net>
Date: Fri, 27 Aug 1999 09:15:37 -0400
From: Ray Vasek <w2ec@ibm.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: SP-600 info
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Are there any web sites or mail lists devoted to the SP-600 like there are the R-390? Looking for online schematics, docs, tips, photos etc.

73, Ray W2EC

Date: Fri, 27 Aug 1999 10:01:36 -0400
From: Allan Stephens <modsteph@ACS.EKU.EDU>
Subject: Re: Mobile radios of the early 70's that fit the BA mold.
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <37C69A3F.A47EAD66@acs.eku.edu>
MIME-version: 1.0
Content-type: text/plain; charset=us-ascii
Content-transfer-encoding: 7bit

Gang:

I had the SB-33 when it was new (about 1963) - a hybrid xcvr with three tubes as I recall - and a Collins mechanical filter (a particularly nice design function). I used it both inside and out to good advantage, particularly in southern Mississippi (Keesler AFB, Biloxi) where my fixed antenna was a windom strung up five stories on the BOQ...

Back home at that time - and late '50's (Springfield, Illinois) most mobile was 6 meters, and most used Gonset Communicators (except for my Harvey-Wells - from home - mom never let me try it in the car).

I remember Ben K9IDQ who had an HF rig in his (his dad's, actually) car. He used the site excuse on dates too - remote area, away from interference... He also had the CW key mounted on the steering column - with a switch which would change it from the radio to the car horn circuit. It was amazing what he could raise at a drive-in during intermission... Or just for passing "the word" to the rest of us on the road...

73, Al N5AIT

Message-Id: <199908271549.LAA13569@smtp6.mindspring.com>
Date: Fri, 27 Aug 1999 08:50:09 +0100
Subject: Replacing waxed paper caps caution
From: "John Gibson" <gibsonj@mindspring.com>
To: Old Tube Radios <boatanchors@theporch.com>
Mime-version: 1.0
Content-type: text/plain; charset="US-ASCII"
Content-transfer-encoding: 7bit

I once rebuilt a AA5. Under the chassis was the usual jumble of waxed paper caps with unsightly wire lengths. The worst offender was a .25 which was wired diagonally across the chassis with must have been 3 inch wire leads. This particular cap connected one side of the power line to the chassis to which was bolted the tuning cap frame, IF cans and speaker frame for a good RF ground.

I replaced all these paper caps with a polyester kind of half the size, with maximum of one inch wire lead. Ho ho I thought, it can only work better now. Wrong. The set worked OK on the high freq end of the AM band but broke into oscillation when approaching 550 kc. I was baffled for days, then had a thought. I grabbed the original .25 chassis bypass and with a sig gen and a scope measured it's series resonant freqency - 455 kcs on the nose! Checked the new polyester .22 with one inch leads and it was resonant about 1 Mcs. I added a little coil in series with it to get the resonance to 455 and the radio worked fine. Problem solved.

John Gibson

I later discovered that in the 10.7 Mc IF stages of VHF radios, the .01 ceramic disc bypass caps had what seemed excessive lead length but it turned out that the extra wire was needed to get enough inductance to series resonate to 10.7 Mhz.

Message-ID: <37C6C0E5.E7032401@earthlink.net>
Date: Fri, 27 Aug 1999 09:46:29 -0700
From: Scott Robinson <spr@earthlink.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Replacing waxed paper caps caution
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

John Gibson wrote:

>
> I once rebuilt a AA5. Under the chassis was the usual jumble of waxed paper caps with unsightly wire lengths. The worst offender was a .25 which was wired diagonally across the chassis with must have been 3 inch wire leads. This particular cap connected one side of the power line to the chassis to which was bolted the tuning cap frame, IF cans and speaker frame for a good RF ground.
> I replaced all these paper caps with a polyester kind of half the size, with maximum of one inch wire lead. Ho ho I thought, it can only work better now. Wrong. The set worked OK on the high freq end of the AM band but broke into oscillation when approaching 550 kc. I was baffled for days, then had a thought. I grabbed the original .25 chassis bypass and with a sig gen and a scope measured it's series resonant freqency - 455 kcs on the nose! Checked the new polyester .22 with one inch leads and it was resonant about 1 Mcs. I added a little coil in series with it to get the resonance to 455 and the radio worked fine. Problem solved.
>
> John Gibson
> I later discovered that in the 10.7 Mc IF stages of VHF radios, the .01 ceramic disc bypass caps had what seemed excessive lead length but it turned out that the extra wire was needed to get enough inductance to series resonate to 10.7 Mhz.

and Scott sez:

In some AM home radios-mainly Motorola-you will find wax paper caps with about 30 turns of wire wound around them from line to chassis. This method is also used (as I recall, beware aging memory) in my Hallicrafterw TW1000 T/O clone. I measured resonance and it's more or less 500 KHz.

Regards,

--
Scott Robinson
spr@earthlink.net

Junque is GOOD for you!

Message-ID: <37C6C32B.ED457D1D@earthlink.net>
Date: Fri, 27 Aug 1999 09:56:11 -0700
From: Scott Robinson <spr@earthlink.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: RECAPPING
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Roberta J. Barmore wrote:

> snip, snip
>
> Tip Three: tantalum condensers are physically smaller than 'lytics for a given electrical size (but likewise polarized) and will therefore be less inductive, have lower leakage, etc. Not bad for audio. Early tantalums were failure-prone; when you stuff lots of C into a small space you pay a price, in cash and in figuring out the how of it. Modern ones are pretty good; for audio apps needing high capacity and in which there'll be some DC to keep the electrochemical activity happy, they are a good choice.

and Scott sez:

I think I should add one very important caution about tantalums. IF they are used as bypasses across a power rail (heater supplies only, they aren't made above 35V) where they can se large transient currents, they will short out-hard!-and let the smoke out of something, possibley hot themselves. I avoid them like the plague for that reason.

Also, they are iffy as unbiased coupling caps because they are pretty good diodes, whereas aluminum types are still capacitors for a few hundered mV the wrong way.

Regards,

Scott Robinson

spr@earthlink.net

Junque is GOOD for you!

From: Stanley A Mcintosh <mcintos@basf-corp.com>
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <852567DA.005C19B0.00@basf-corp-gw01.basf-corp.com>
Date: Fri, 27 Aug 1999 12:49:25 -0400
Subject: BC-348 Dial Lamp Current
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Anyone know what the current requirements are for the above? I'm cobbling together a power supply to drop into the dynamotor bay, but the 24V supply is only good to 1 amp. Given that the two filament strings will require 0.7 amps, that leaves only 0.3 for lamps. Might be more than enough, might not. Then again, I might just have to measure the current demand for the lamps with the lamp line connected and the filament lines not.

Just wondered if I need to even think about thinking about alternatives. One thought was to put a current limit transistor (gasp) pair in line with the lamps to permit 0.3 amps, but no more, to go into the lamps. That way, a lit dial could not sap needed power from the filaments.

Thanks,
sam

Message-Id: <199908271937.PAA09363@smtp6.mindspring.com>
Date: Fri, 27 Aug 1999 12:38:23 +0100
Subject: Fabulous cheap power transformer
From: "John Gibson" <gibsonj@mindspring.com>
To: Old Tube Radios <boatanchors@theporch.com>
Mime-version: 1.0
Content-type: text/plain; charset="US-ASCII"
Content-transfer-encoding: 7bit

The next time you see a sad Tek 535 or 540 series scope on the way to the landfill, consider rescuing the power transformer. It has multi secondaries - something to please everyone, from regular power supplies to audio amps and small transmitters. Here is the pinout.

Primary

4,2	115V	
3,1	115V	Connect 2 to 3 for 230V

Secondary

20,21	186V@25Ma
16,9	6.3V@1A

27,28	6.3V@0.5A
22,23	6.3V@1A
24,25	6.3V@0.6A, insul for 3KV (CRT heater)
5,10	116V@200Ma
7,14	116V@200Ma, Connect 10 to 7 for CT 232V
12,13	6.3V@5A
18,19	6.3V@5A
8,15	141V@100Ma
17,26	6.3V@5A
6,11	204V@75Ma

If you do not use every winding, you can increase the current draw from what you use (somewhat!).

Not enough volts? Consider voltage doubler or triplers or adding windings in series with consideration for correct phasing.

I needed a special transformer to power a RBC receiver and this one enabled me to come up with a design to give 200V reg @ 100Ma, 105V reg @10Ma, 17V@1A for the constant current circuit of the HF osc, plus 6.3V@6A for the heaters.

John Gibson.

Message-Id: <199908271944.PAA06542@smtp6.mindspring.com>
Date: Fri, 27 Aug 1999 12:45:57 +0100
Subject: Fabulous power transformer 2
From: "John Gibson" <gibsonj@mindspring.com>
To: Old Tube Radios <boatanchors@theporch.com>
Mime-version: 1.0
Content-type: text/plain; charset="US-ASCII"
Content-transfer-encoding: 7bit

Oops missed a pin from the pinout.

29 is the faraday groundshield between primary and secondary, and if you series windings for higher voltage, the max current is of the weaker winding.

MIME-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit
Date: Fri, 27 Aug 1999 15:54:09 -0400 (EDT)
Subject: STRANGE NC-303 PROBLEMS
To: Old Tube Radios <boatanchors@theporch.com>
From: JOHN_SEHRING.parti@ecunet.org (JOHN SEHRING)
Message-ID: <9908271554.aa28952@pcusa01.ecunet.org>

>Some (strange clues:):
>   When I remove the rf amp tube, all signals stop (don't laugh yet).
>   When I remove the 6BA7 first mixer, all signals stop.
>   BUT, when I remove the 6BE6 second mixer, the ham signals stop, but
>   the foreign broadcasts continue.
>   Pulling the if amps kills everything.
>
> What's happening? How are these signals getting into the radio? The if
> strip?

Yes, odd. The 2nd IF on this is 85 kHz. The 1st IF has two IF cans but no amplifier.

In your step 3, I assume the 6BE6 2nd mixer is the only tube pulled. Sigs coming out of 1st IF are only at 2125 kHz (unless there's some HF osc energy there too).

Something has to get it down to 85 kHz. Could be several sigs about 85 kHz apart are mixing somehow. But the bandpass of the 1st IF is not likely much more than about 20 kHz so how's that going to happen?
And where could mixing occur (no 2nd mixer)?

> Here's one data point ... 20 meters only. Haven't checked the other
> bands yet, but there are SWBC signals on 15/10 as well
>

What are those SWBC freqs?

> SWBC stations from the 31M band are showing up on 20. Very
> strong signals. One example ... SWBC at 9680 Khz appears at
> 14110 Khz on the 20 meter band. Difference is 4430 Khz which is
> 1/2 of the 1st IF of 2215 Khz.

Well, that's just superhet image response at +_2 times the IF freq.
Suggests RF and/or mixer tuned circuit problem. I hate to ask (don't want to insult you) but is alignment exactly as it should be...hf osc is on the *correct* side of received freq? RF & mixer peaked right?

> A quick look at the HF oscillator signal (at the grid of the 1st mixer)
> on a Tek 465B indicates a waveform that looks almost like a triangle
> wave with the upper tips tilted to the right -- not quite a sawtooth,
> but close.

Yikes, Mr. Fourier tells that a sawtooth wave is super loaded with odd order harmonics. I assume you are using a probe which loads the ct very lightly...grid ct is very high impedance spot.

> Guess its time to do some digging ....

I hope this is all due to parts problems & not ct. design! I've always wanted an NC-303. It was the very first proper ham band receiver I ever saw, at the tender age of about 12 years.

I once had an NC-183D, that's the double conversion kind.

Its ct is somewhat like the -303. It too had problems I think related to the 2nd mixer (also a 6BE6). Weird responses every 5-10 kHz or so on busy bands. Never solved, long ago, not smart enuf (maybe not smart enuf yet!).
 -John Sehring (Fri, Aug 27, 1999 Custer SD USA) UCC WB0EQ

MIME-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"
Content-Transfer-Encoding: 7bit
Date: Fri, 27 Aug 1999 15:54:09 -0400 (EDT)
Subject: NC-303 PROBLEMS/TEST GEAR
To: Old Tube Radios <boatanchors@theporch.com>
From: JOHN_SEHRING.parti@ecunet.org (JOHN SEHRING)
Message-ID: <9908271554.aa28955@pcusa01.ecunet.org>

The trick with cheap, less than perfect test equipment is to know its limitations. Once those are known, you can take account of theme and usually work around them.

The tv-repair/hobbyest grade test gear is a lot less expensive, almost throw-away prices. I would rather stretch myself intellectually & keep my eyes/ears/brain open to their funkiness than spend a whole lot more $$ on test gear.

Yes, it did take me some years to figure out the strange RF sig gen output waveforms. Yes, my freq counter never liked 'em. And I thought it was the counter's fault. Live & learn.

I don't make a living at this (& I don't pretend it is), it's a hobby, so I can afford the time & head-scratching is part of the lure to me, like a good crossword puzzle.

To paraphrase a bit, "test gear, know thyself." Just one person's opinion.

 -John Sehring (Fri, Aug 27, 1999 Custer SD USA) UCC WB0EQ

Message-ID: <37C6F0E7.5F0B0D00@uswest.net>
Date: Fri, 27 Aug 1999 14:11:19 -0600
From: James Hanlon <knjhanlon@uswest.net>

MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: Mobile Radios of the 70's
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

I haven't seen anyone else mention the rig I was running, so here goes. I was on a very low budget, and consequently used an Eico 753, unfondly know as a "seven drifty three" in many circles. It was fairly stable as long as it was not near any air vent, especially the heater in the winter time. My antenna was a CB whip with a Johnson bandswitching, base loaded coil. All of that was on the luggage rack on my 68 Chevelle wagon. I used to go through a corregated tunnel under a RR track on the way to work, and the whip would drag on the top. Sounded very interesting. My power supply was a homebrew transistor oscillator type. It sat under the passenger seat and would sing loudly when the rig was on the air. Occasionally a non-ham passenger would ask what that noise was. When I said that was a 600 volt power supply, they became slightly uncomfortable.

I still have the Eico. Gad, I never get rid of anything!

73,

Jim, W8KGI

I still have the Eico

Message-ID: <37C6F37D.3ADEE94D@uswest.net>
Date: Fri, 27 Aug 1999 14:22:22 -0600
From: James Hanlon <knjhanlon@uswest.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: STRANGE NC-303 PROBLEMS
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

For what it is worth, I have an NC303 in my "summer shack" that works just fine. I usually have it connected to my 160 meter half wave zepp via an antenna tuner that is tuned for the ham band in question, so I have a little more selectivity in front of it. I have never notice any image or spurious interference on it. I count it as one of my best receivers.

So ... I suspect that the problem in question is not a
designed-in one but rather one that may be due to
mis-alignment or some component failure.

Have faith and keep looking.

It might help to dial a signal generator through any
suspected frequency range to find out where the unwanted
responses are. From there it's detective work to see how
they get through the front end and into the second
detector. Should be an interesting chase.

Jim, W8KGI

Message-ID: <4BDCB15B278AD211A7CF0060943F45DB155A19@EXCHSRV1>
From: "Osterwald, Ray" <t4504@psco.com>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "'boatanchors@theporch.com'" <boatanchors@theporch.com>
Subject: RE: RECAPPING
Date: Fri, 27 Aug 1999 14:40:35 -0600
MIME-Version: 1.0
Content-Type: text/plain;
     charset="windows-1252"
Content-Transfer-Encoding: quoted-printable

Hello all
One thing that=92s worked well for me, even though it=92s more time =
consuming,
is to not replace tubular paper bypass caps with disk ceramics. What =
I=92ve
been doing is re-coring the old caps. I do this by first carefully =
slitting
the cardboard cover with a new single-edge razor blade. If the old guts
won=92t come out with a little persuasion, a quick dip in boiling water =
does
the trick. Then I replace the old paper/foil core with a brand new =
tubular
Mylar condenser. I repair the original casing with a little white glue, =
and
when that=92s dry I fill the whole thing with beeswax (available in =
craft
stores). Then, the original component lengths can be preserved. Some
polystyrene caps are also built with an =93outside foil=94, so if one =
desires
the entire original layout may be preserved. This method has worked =
well on
some very cheap broadcast receivers of the =9130s that I=92ve restored =

for
friends, and also on better quality ham gear for myself.=20
I guess I also enjoy seeing a vintage chassis looking close to =
original=97the
advertising art on some of those old condensers is beautiful, at least =
I
think so.
Keep the filaments lit and 73
Ray Osterwald, N0DMS

-----Original Message-----
From:	Arden Allen [SMTP:gumbear@pacbell.net]
Sent:	Thursday, August 26, 1999 8:46 PM
To:	Old Tube Radios
Subject:	Re: RECAPPING

Hello Red;

> While happily replacing paper/wax caps with disc ceramics, I
thought
> of something in the past. Someone or something I read said a=20
> number of the old tubular caps could be replaced only with other=20
> tubulars. This was because in some circuits, the big tubulars
also=20
> formed a shield, thus prevented other problem, ie oscillating
amplifiers.
=20
> Is this true or maybe something I picked up from the guy that told
me=20
> some tubes go bad because they loose their "emerson".

Tubes lose their emission but we learn electronics by emersion. My
spell
checker tried to convert it to emerson so that's what you get when
you let
a machine do the work for you.!!!

Big bypass caps are tied to chassis and therefore RF ground. If
they are
big and bulky they just may serve as a shield between stages whether
it was
intended that way or not. The clever design teams used such methods
to
make cheap equipment function properly but the more astute ones
tried to
build equipment that was not dependent on sloppy gimicks. A careful
evaluation may be in order as you go along replacing tubulars with
disks.=20

There is a slight chance you may stumble upon such a situation but it is easy to remedy the situation by trial and error. On occasion I have adjusted wires that I suspected might be causing coupling problems but there is a rule I apply to such situations: If it worked properly once before the way it is, what could I possibly do to screw it up? The answer I found most often is, you won't screw things up, and if it seems you did, it's because they were already screwed up. Have fun......

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

From: "Rhett T. George" <rtg@ee.duke.edu>
Date: Fri, 27 Aug 1999 17:03:32 -0400
Message-Id: <199908272103.RAA13440@champ.ee.duke.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Excess capacity

- Greetings -

Excess to my needs (and to the needs of most people) is a bunch of old capacitors. Here is the list.

Quantity	Capacitor
1	GE 1 uFd @ 25 kV
1	WE .03 MF (uFd) @ 10 kV
2	Sprague Vitamin Q .075 + .075 uFd @ 8 kV
6	GE 0.5 uFd @ 7.5 kV
2	Flechtheim Transmitting Condenser 2 uFd @ 2 kV

Each is $2 plus packing and shipping. Anyone wanting one or more of these at Shelby, please advise me ahead of time. The capacitors are underfoot in Durham, NC.

73 Rhett - KE4HIH

Message-Id: <3.0.5.32.19990827161848.007b9b50@pyramid3.net>
Date: Fri, 27 Aug 1999 16:18:48 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Jim Isbell <mfalcon@pyramid3.net>
Subject: Narco, Collins, Swan, Johnson, etc.

Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

I have just found this list and am looking forward to finding help on the restoration of several old radios that I have had sitting gathering dust on the shelves for 30+ years.

I have a Collins KWM-1, Johnson Viking Ranger, and Swan 250 6meter ham rigs. I also have several aircraft radios, Narco Super Homer (nav/comm), Air-o-ear TR-102A Nova Tech Inc (comm), and a Narco LFR-1 RDF unit that is so old the company doesn't even remember making it!

I also have several converters, an RME 80 to 10 meter converter (output frequency unknown) a Gonset three band 3 to 30 MHz converter that I assume outputs on broadcast band and a truly beautiful boat anchor, an RME VHF-126 converter (6, 2, 1 1/4 meters). Again, I don't know the output frequency.

They have just set there for years since I have no documentation on any of them.

If anyone can help me with documentation I would be very pleased.

BTW, does anyone use these radios anymore. Is anyone operating on AM? I would love to use the radios as I cant see having an antique and letting it sit on the shelf.

From: AA5QT@aol.com
Message-ID: <f3cf4c95.24f872b1@aol.com>
Date: Fri, 27 Aug 1999 19:01:05 EDT
Subject: NC-303: Improving
To: Old Tube Radios <boatanchors@theporch.com>
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

First and foremost, let me thank all of the respondents on this fine list. The knowledge demonstrated has been incredible, and the tips outstanding. As I am fairly skillful at only basic troubleshooting, this was over my head.

I am not alone with this broadcast signal problem. Some others, more capable than I, are off into the bowels of their 303's even as you read this (Grant, good luck).

To set the record straight, I had aligned my receiver before my post, just to eliminate that. I used my trusty HP-606A with an HP freq counter. There was an Electric radio article I found that was a lot more helpful than the 303 manual. Now I haven't touched any oscillators, as I truly don't know what to look for.

But things are much better! I took a LOT of suggestions, and did the following (I apologize for my lack of Scientific Method- I made the changes all at once, as my bench is a ways from my operating position and antenna):

o The 20M trap was adjusted (using an input signal of 9.4 mc and minimizing the mixed signal at 14.1). Obviously, National knew they had a problem. This trap is mentioned in the 300 manual, but NOT in the 303 manual. Go figure.

o A 47 ohm resistor was inserted in series with the grid lead of the second mixer, just in case of a parasitic oscillation.

o Two marginal solder joints were found and corrected, one at each mixer socket.

o Both mixer tubes were replaced (again).

So, things are much better. I still hear some broadcast signals on 10M, but I'm not overly concerned. Maybe some of the research underway will find something else, but my situation is 1000% improved.

This is a fantastic receiver, once one doesn't have to listen the foreign broadcasts!

Again, thanks to all.

73, Gary K5QT

Message-Id: <3.0.1.32.19990827193333.006a5c78@pop.mindspring.com>
Date: Fri, 27 Aug 1999 19:33:33 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Garey Barrell <k4oah@mindspring.com>
Subject: NC-300 / 303 Image Trap
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Several people have asked about the mixer image trap in these receivers.

A little research turned up some interesting information. (As usual!!)

My copy of the NC-300 manual has instructions for setting this trap in

Section 4-6 of the alignment instructions. It references L18 and C86. It is a simple series trap and is aligned by setting the receiver to 14.1 Mc., applying a 9,670 kc. signal, and adjusting C86 for minimum output. (Sound familiar??)

OK fine... This trap is NOT shown on the schematic, but IS in my NC-300.

My NC-303 schematic shows the trap on the schematic, even L18 and C86 are marked, but NO mention of adjustment in the alignment instructions. My NC-303 also has the trap in place.

National Service Bulletin FSN-30, paragraph 2.c. describes the addition of a "new condenser and coil" to the mixer partition "to raise the image ratio from 60 db to 80 db" and goes on to describe the adjustment procedure.

The trap is a simple 3-35 uuf trimmer cap in series with a small coil to resonate at approx 9,870 kc. It is connected to a (previously) unused 14 mc bandswitch contact on Section S1F.

p.s. Someone else mentioned a problem with spurious responses related to the 80 kc. second IF. I lost the message, so don't know who it was. National Bulletin Number FSN-33 adresses "Unsatisfactory attenuation of spurious responses 40 kc (1/2 the 80 kc. IF) removed from a strong signal's frequency." If this describes the problem you were having, I'd be glad to describe / send you a copy of the FSN. It involves the re-dressing of some wiring and addition of a shielded lead.

73,

Garey - K4OAH
k4oah@mindspring.com
Atlanta

End of BOATANCHORS Digest 2649
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